

What is claimed is:

1. A particle sizing and separating apparatus, comprising:
  - a base;
  - 5 a frame movably mounted on the base;
  - a motor assembly for vibrating the frame;
  - at least two screens mounted on the frame;
  - means for feeding particles to each of said screens from two opposing sides of each of the screens;
- 10 a pan disposed beneath each screen to receive sized particles that pass through the screens; and
  - an outlet to receive oversize particles that pass over the screens.
2. The apparatus of claim 1, further comprising a spreader tray for each screen,
  - 15 wherein each spreader tray is disposed above each respective screen to distribute particulate material onto each screen.
3. The apparatus of claim 1, further comprising a screen box mounted on the frame and in which the at least two screens are secured.
- 20 4. The apparatus of claim 1, further comprising a distributor proximate the frame and in fluid communication with the means for feeding particles to the screens.

5. The apparatus of claim 4, wherein the distributor includes a flow control system.

6. The apparatus of claim 1, wherein the screens are vertically aligned in a spaced parallel manner.

7. The apparatus of claim 1, wherein the at least two screens include five screens.

10 8. The apparatus of claim 1, wherein the frame is movably mounted on the base by a spring system.

9. The apparatus of claim 1, further comprising an undersize material discharge system, which includes at least one tube that is in fluid communication with the pans.

15 10. An apparatus for the sizing and separating of particles, comprising:  
a base;

a frame mounted on the base by suspension means;

a motor assembly attached to the frame for vibrating the apparatus;

20 at least two screens mounted on the frame;

a spreader tray for each screen, wherein each spreader tray is mounted on the frame above each respective screen;

at least two opposing inlet ports for each spreader tray disposed proximate to each respective spreader tray;

means for delivering particles to the inlet ports;  
a pan for each screen mounted on the frame and disposed under each respective screen to receive particles that pass through the screens; and  
a hopper disposed beneath the screens and defining an outlet to receive particles that pass over the screens.

11. The apparatus of claim 10, further comprising a screen box mounted on the frame and in which the screens, spreader tray and pans are secured.

10 12. The apparatus of claim 10, wherein the screens are vertically aligned in a spaced parallel manner.

13. The apparatus of claim 10, wherein the at least two screens include five screens.

15 14. The apparatus of claim 10, wherein the screens are at an angle of about zero degrees relative to horizontal.

20 15. The apparatus of claim 10, wherein the screens are at an angle of about fifteen degrees relative to horizontal.

16. An apparatus for the sizing and separating of particles, comprising:  
a base;  
a frame mounted on the base by suspension means;

- a motor assembly attached to the frame for vibrating the apparatus;
- a screen box mounted on the frame;
- at least two screens disposed within and secured to the screen box;
- a spreader tray for each screen, wherein each spreader tray is disposed above each

5     respective screen in the screen box;

- at least two inlet ports defined in opposing sides of the screen box for each spreader tray proximate each respective spreader tray;
- a distributor proximate the screen box;
- means for connecting the distributor to the inlet ports, whereby particles are

10    conveyed from the distributor to the inlet ports and on to the spreader trays;

- a pan for each screen, wherein each pan is disposed in the screen box underneath each respective screen to receive particles that pass through the screens;
- at least one tube in fluid communication with the pans to convey undersize particles away from the apparatus; and

15    a hopper at a lower end of the screen box that defines an outlet to receive and convey particles that pass over the screens away from the apparatus.

17.    The apparatus of claim 16, wherein the screens are secured to the screen box in a vertically aligned spaced parallel manner.

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18.    The apparatus of claim 16, wherein the distributor defines an outlet port for each inlet port defined in the screen box.

19. The apparatus of claim 16, wherein the means for connecting the distributor to the inlet ports include a hose.

20. The apparatus of claim 16, wherein the spreader tray defines perforations.